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World Intellectual Property Organization (WIPO) - Geneva, Switzerland  
Organisation Mondiale de la Propriété Intellectuelle (OMPI) - Genève, Suisse

128722

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

*February 18, 2005*

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**APPLICATION NUMBER: 60/537,875**

**FILING DATE: *January 20, 2004***

**RELATED PCT APPLICATION NUMBER: *PCT/US05/02425***



Certified by

Under Secretary of Commerce  
for Intellectual Property  
and Director of the United States  
Patent and Trademark Office

012004

22764 U.S. PTO

PTO/SB/16 (08-03)

Approved for use through 07/31/2006. OMB 0651-0032

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# **PROVISIONAL APPLICATION FOR PATENT COVER SHEET**

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

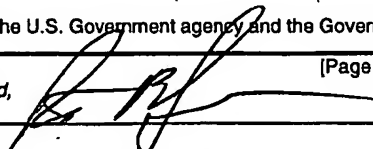
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031431 U.S. PTO  
60/537875

012004

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Edward Marion		Casaccia		Carmichael, California	
David Alan		Casper		Nevada City, California	
<input checked="" type="checkbox"/> Additional inventors are being named on the 1 separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
CONTEXT SENSITIVE AUDIO/VIDEO MIXING AND SWITCHING CONTROL PANEL					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number					
OR					
<input checked="" type="checkbox"/> Firm or Individual Name		JOSEPH S. TRIPOLI, THOMSON LICENSING INC.			
Address		PATENT OPERATIONS			
Address		P. O. BOX 5312			
City		PRINCETON	State	NJ	ZIP 08543-5312
Country		USA	Telephone	609 - 734-6834	Fax 609 - 734-6888
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages		3		<input type="checkbox"/> CD(s), Number	
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets		3		<input type="checkbox"/> Other (specify)	
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.					
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees					
<input checked="" type="checkbox"/> The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 07-0832					
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
FILING FEE AMOUNT (\$) 160					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

Respectfully submitted,  
SIGNATURE



[Page 1 of 2]

Date

1/20/04

TYPED or PRINTED NAME

Robert B. Levy

REGISTRATION NO.  
(if appropriate)

28,234

Docket Number:

PU040012

TELEPHONE

609-734-6820

## **USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT**

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**Additional Page**

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**Docket Number:** PU040012

**INVENTOR(S)/APPLICANT(S)**

Given Name (first and middle (if any))	Family or Surname	Residence (City and either State or Foreign Country)
Paul Martell	Trethewey	Nevada City, California

[Page 2 of 2]

Number 2 of 2

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# FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 160

## Complete if Known

Application Number  
Filing Date  
First Named Inventor Edward Marion Casaccia  
Examiner Name  
Art Unit  
Attorney Docket No. PU040012

## METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money ☐ Other ☐ None  
Order

☒ Deposit Account:

Deposit Account Number 07-0832

Deposit Account Name THOMSON LICENSING INC.

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments  
☐ Charge any additional fee(s) during the pendency of this application  
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	160

SUBTOTAL (1)

(\$ 160)

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims  \*\* =  X  =   
Independent Claims  \*\* =  X  =   
Multiple Dependent  X  =

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2)

(\$ 0)

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17 (q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3)

(\$ 0)

## SUBMITTED BY

Name (Print/Type) Robert B. Levy Registration No. (Attorney/Agent) 28,234 Telephone 609-734-6820  
Signature Date January 20, 2004

## Complete (if applicable)

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P0040012

**A. Brief summary of the invention**

A set of modular control panels bringing control of audio mixing, video switching and effects, and external device functions to the hands of a single user. This level of control concentration by a single individual is made possible by software that constantly redefines the function and/or devices controlled by the buttons, faders, switchers, positioner, knobs, and all other physical controls on the panel(s) to coincide with the sources, effects, functions etc. required at that particular instant in a live television production. Contrariwise, the panel also allows the user single-button access to pre-stored multiple-device selections, effects, and functions to enable production flexibility to deal with unexpected events.

**B. Keywords: list keywords or combinations of keywords to guide patent and literature searches. Underline the most important keywords.**

Switcher, Mixer, Automation, E-MEM, GPI, PVTV

**C. Brief discussion of the problem solved by the invention**

Existing systems for single-user control of live productions require the user to reach for a touchscreen and/or mouse for all control and configuration functions. This is undesirable because the hand-eye coordination required for using a graphic user interface removes the user's attention from the program script and the video monitors. A physical panel with tactile controls allows direct hand control in a manner not dissimilar from touch-typing, such manner already being familiar to operators of video switchers and audio mixers.

**D. Discussion of how you or others have implemented similar things in the past, including the manner in which others have attempted to solve the problem. Point out disadvantages and weaknesses in previous practice. Include literature references where available.**

This is a new area of endeavor. There are two existing systems for supplying a single point of control for live production operations. ParkerVision's PVTV system has no

physical user interface device, and Ross Video's OverDrive production control system utilizes a traditional video switcher control panel.

**E. Description of the invention, including one or more practical embodiments of the invention in sufficient detail to allow one with ordinary skill in the art to practice the invention. Include schematic(s), flow chart(s) and/or figures to clarify operation of the invention. Point out important features and items you believe to be new. State advantages of the invention and sacrifices, if any, made to achieve these advantages. Describe any experiments conducted and the results of those experiments.**

The invention is a combination of software and hardware through which a single physical control panel (possibly segmented into discrete modules for video switching, audio mixing, and/or device control) offers a user the ability to control all the audio and video production devices required for a complex live television broadcast including but not limited to video switchers, audio mixers, video and audio servers, video and audio routers, character generators, still stores and clip players, camera CCUs, camera robotics, and lighting controllers. The necessary element in making this wide variety of control feasible within a panel of sufficient physical simplicity and accessibility to allow control by no more than one user is the ability to change the functions of the various controls on the panel according to the context of the production at any given instant.

As an example, it would not be possible for a single human being to synchronously move all of the buttons, faders, joystick positioners, etc. required to do a transition between a studio camera shot with multi-layered video overlays and multiple audio sources open to a remote news live shot using traditional switching and mixing control surfaces. However, if a specialized panel is configured by software to simultaneously trigger movement of audio faders, re-selection of video switcher sources and effects, output content of character generators and still stores, etc. by assigning all of those synchronous activities to a single control, the user need only actuate that control. The invention expands on simple "yes/no" logic in such actuation by allowing the user to retain elements from the previous on-air configuration and/or "pre-use" elements from an upcoming on-air configuration.

The drawing in Attachment 1 depicts one possible configuration for such a panel: the rightmost portion of the drawing contains a subpanel used for device control. The top portion of that subpanel is camera control. Software determines which camera is under control of the positioner and knob controls at any given moment and also lights LED displays informing the user of which camera is currently in use and which is next to be used. The user may adjust the on-air camera with the positioner and knob controls or select any other camera to adjust by pressing the appropriately labeled

button. None of these actions have any bearing on which camera is actually being taken to air. The button field below the camera controls allow the user to manually trigger playout of software staged character generator and/or still store events or to call upcoming or previous events and trigger playout of them. In this area the user is also able to choose whether to take the event to air instantaneously or through the means of some pre-configured effects such as a character generator typing out letters individually.

The center section of the panel provides the user a means to monitor and adjust the levels of the audio sources required by the production at any given moment as assigned by software as well as to monitor and adjust the master output audio level. Motorized faders are positioned by the software but such positioning can be overridden when the fader is moved by a human hand. The button field above the faders allows the user to select source(s) to be preserved from the current mix to the next one required by software as well as to open source(s) from the next mix while the current mix is still being used.

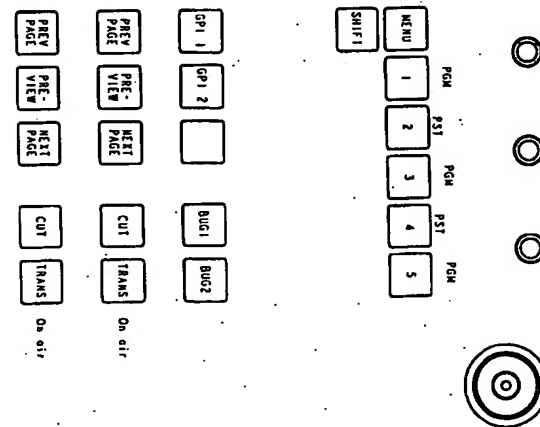
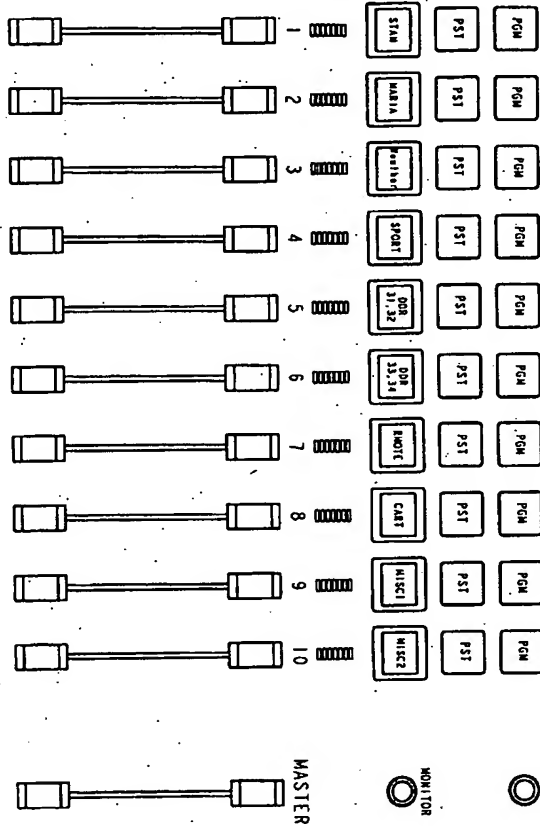
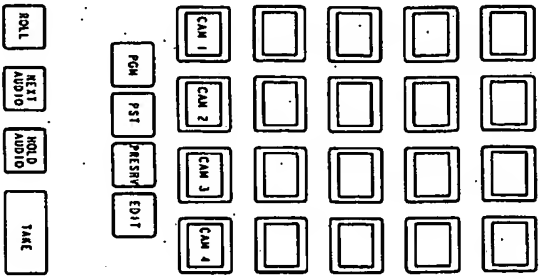
The leftmost section of the panel is used to apply human timing and esthetic sense to the progression through the software defined configurations used in the production. In the example cited above, the transition from the complex studio shot to the news remote would be accomplished simply by pressing the "take" button. Unlike in traditional switchers, this may or may not trigger a video "take". Indeed, if the software configurations call for it, pressing the take button may trigger a complex auto-trans video mix with multiple key frames, playing one or more audio and/or video server channels while stopping playout on others, cross-fading multiple audio sources, etc. The button field occupying most of this panel allows the user to select from a group of pre-defined software configurations and force one or more of them to air to deal with unexpected production events such as breaking news storage.

The drawing in Attachment 2 provides an example of the underlying physical architecture required to realize such panel functionality, and Attachment 3 describes how such a panel would relate to other physical and logical devices involved in the production.

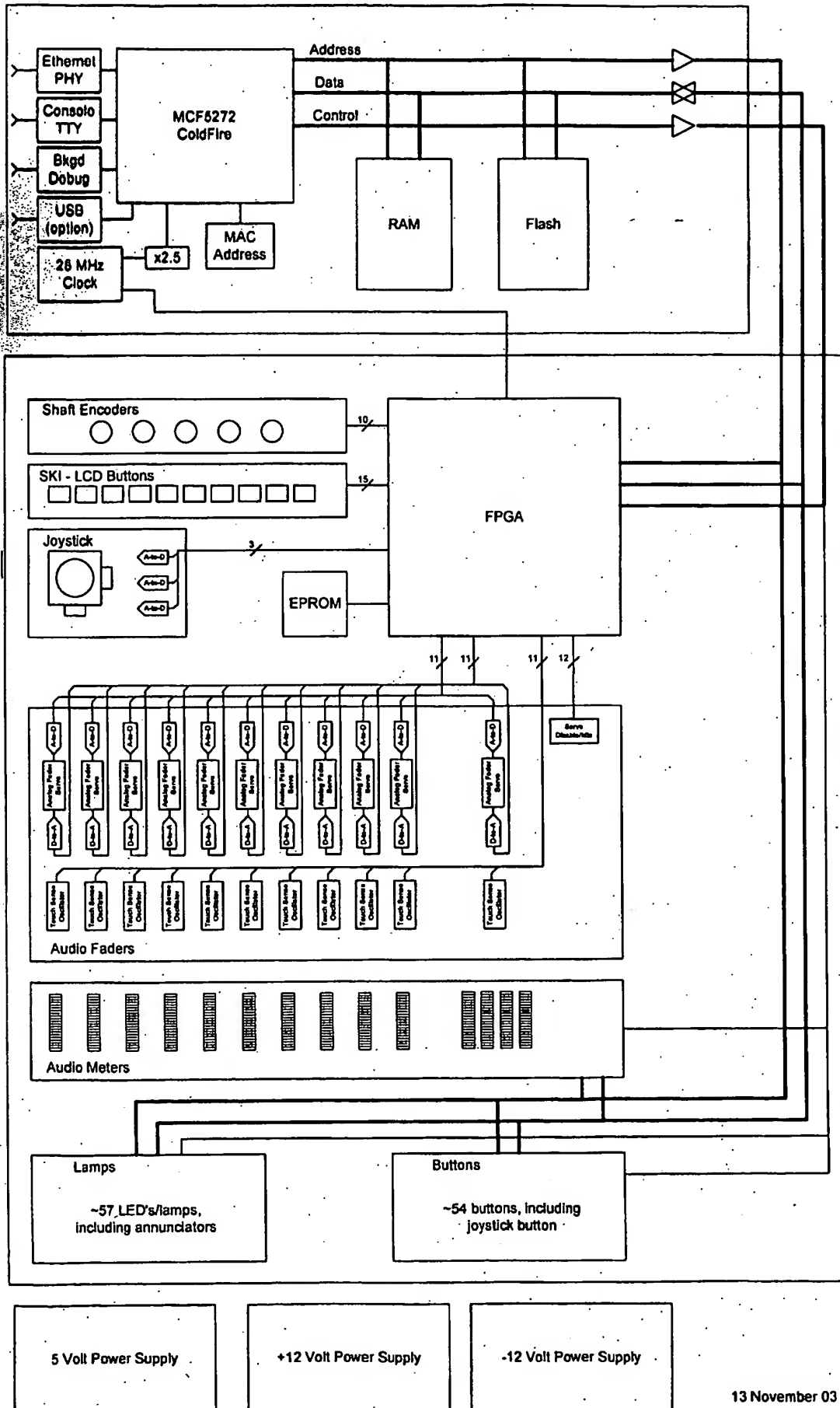


# Tsunami Control Panel

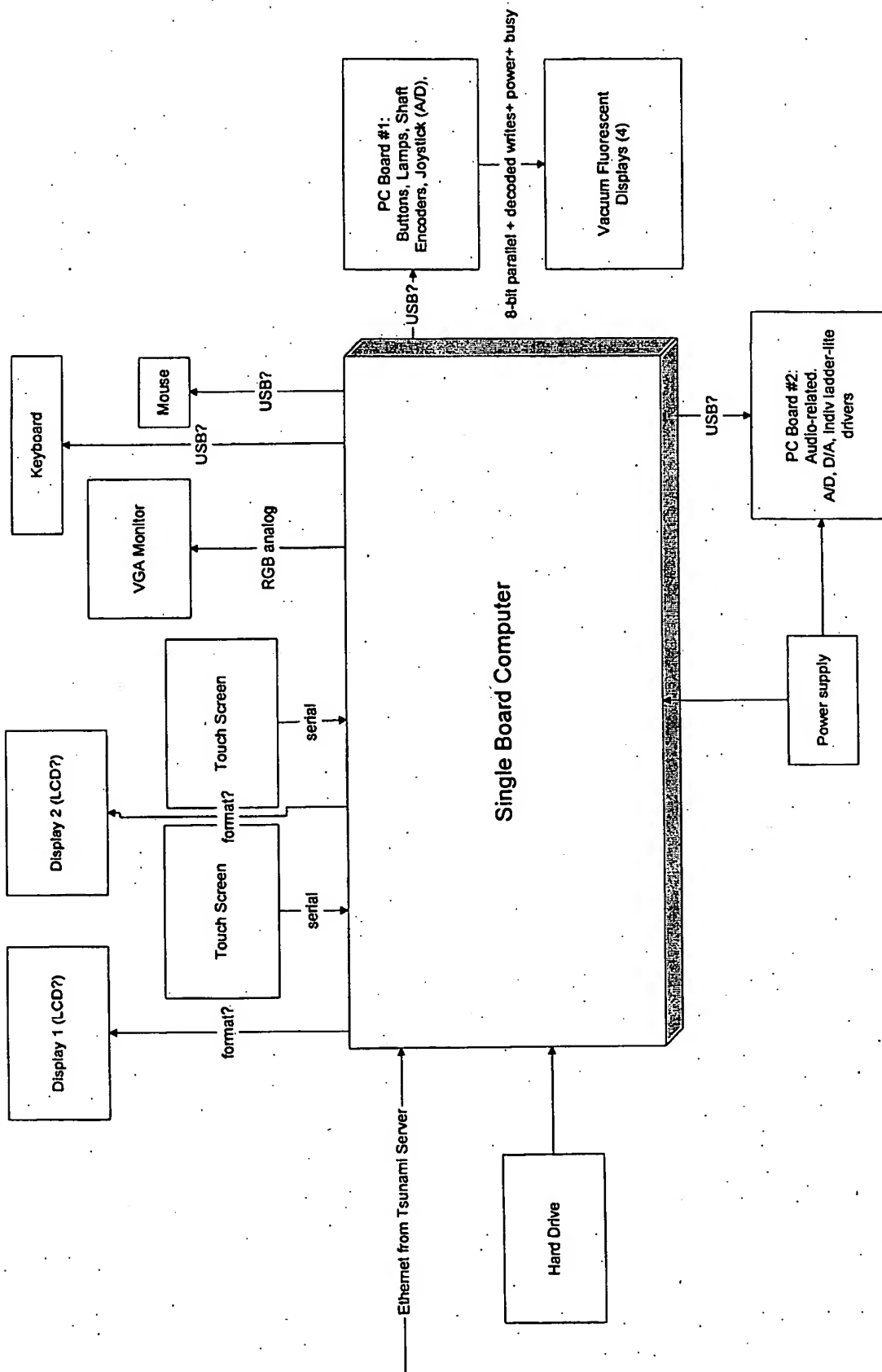
11/25/03, Rev 9



# CONTROL PANEL BLOCK DIAGRAM



13 November 03



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